European Network of Economic Policy Research Institutes

# HEALTH & MORBIDITY IN THE NEW MEMBER STATES

## ENEPRI POLICY BRIEF NO. 1

## DECEMBER 2007

---

## EXTRACTING THE POLICY IMPLICATIONS FROM ENEPRI RESEARCH REPORT NOS. 26-31 PREPARED AS WORK PACKAGE II OF THE AHEAD PROJECT (AGEING, HEALTH STATUS & DETERMINANTS OF HEALTH EXPENDITURE)

No. 26 *Health and Morbidity in the Accession Countries: Country Report – Bulgaria*, Rossitsa Rangelova, December 2006

No. 27 *Health and Morbidity in the Accession Countries: Country Report – Estonia*, Liis Rooväli, December 2006

No. 28 *Health and Morbidity in the Accession Countries: Country Report – Hungary,* Edit Remák, Róbert I. Gál and Renáta Németh, December 2006

No. 29 *Health and Morbidity in the Accession Countries: Country Report – Poland,* Stanisława Golinowska and Agnieszka Sowa, December 2006

No. 30 *Health and Morbidity in the Accession Countries: Country Report – Slovakia,* Vladimír Kvetan, Viliam Páleník, December 2006

No. 31 *Health Status and Healthcare Systems in Central and East European Countries: Bulgaria, Estonia, Poland, Slovakia and Hungary,* Stanisława Golinowska, Agnieszka Sowa and Roman Topór-Mądry, December 2006

**ENEPRI Policy Briefs** present the policy implications of research carried out by member institutes of the European Network of Economic Policy Research Institutes. Initiated by CEPS in 1999, ENEPRI conducts research on welfare and employment issues with the aim of diffusing existing research, coordinating research plans and increasing the awareness of the European dimension in national problems. The research presented in this Policy Brief was conducted under the AHEAD project (Ageing, Health Status and the Determinants of Health Expenditure), which was funded for a three-year period by the European Commission under the 6th Research Framework Programme (contract no. SP21-CT-2003-502641). The research, carried out by a CEPS-led consortium of 18 partner institutes, was organised into nine Work Packages, the results of which have been published in the ENEPRI Research Report series and are available for free downloading on the CEPS online bookshop (http://shop.ceps.eu) and from the ENEPRI website (http://www.enepri.org).

A brief description of the AHEAD project and a list of its partner institutes and publications can be found on the last pages of this Policy Brief.

# HEALTH & MORBIDITY IN THE NEW MEMBER STATES

# ENEPRI POLICY BRIEF NO. 1

**DECEMBER 2007**

## Introduction

The analysis aims to describe processes of demographic and epidemiological changes, as well as health status self-assessment in selected Central and Eastern European countries. Countries selected for analysis represent groups characterized by similar tendencies and specific health and demographic characteristics. Estonia represents the Baltic states, Bulgaria – Balkan countries, and Slovakia represents countries of Central Europe. Poland is a specific country, with demographic and epidemiological characteristics similar to Slovakia, but much larger, with a high share of rural population. In Hungary, demographic processes related to the second demographic transition began much earlier and are still dynamic, and as such constitute a reference for other CEE countries. Analysis is presented in the context of medical service utilisation, impact on frequency and structure of services use. Special attention is given to those demographic and epidemiological changes that have direct impact on the frequency of medical service utilisation and, as such, determine the increase of healthcare costs. The ageing process and health status improvement are the main hypothetical determinants of healthcare cost increases, and thus they are presented in more detail. Additionally, changes in health behaviour – mainly in the utilisation of medical services – are discussed in the context of institutional changes in the healthcare sector.

## Methodology

The study was designed and implemented in two stages. During the first stage, national teams of experts prepared reports on demographic and health developments in each country in recent decades. These studies included logit analysis examining probability of being in poor/good health depending on different social and economic variables. Special attention was given to the impact of ageing. For each country logit models also tested probability of medical services utilisation (where possible, primary, specialist and hospital care separately) by population in different health status, age and by other social and economic characteristics. Logit models were based on survey data on health status self assessment (see Table 1 below).

*Table 1. The analysis is based on following sample surveys*

| Country | Year of the survey | Name of the survey |
|---|---|---|
| Bulgaria | 1997 | Bulgaria Integrated Household Survey |
| Estonia | 1999 | Living Conditions Study in Estonia (Norbalt II) |
| Hungary | 2003 | National Health Interview Survey |
| Poland | 1996 | Health Status Population Survey |
| | 1998, 1999, 2003 | Healthcare in Households Survey |
| Slovakia | 2003 | CINDY Health Monitor Questionnaire |

*Source*: Own compilation based on AHEAD country reports.

Listed surveys were not standardised and therefore are not fully comparable between countries. Surveys were cross-sections, and even in case of time series (Poland) they did not constitute a panel. Besides health status information, they included data on the basic demographic, social and economic situation of individuals. However, the set of individual data was different in each country, e.g. information on sex, age and education was available in each country, while information on disabilities was available only in Estonia.

In the second stage of analysis, a comparative report was prepared. This report was based on country reports as well as available, external data sources, including the WHO "Health for All" (HA) database, OECD Health Data 2004 edition. Additional sources of information on institutional changes in healthcare and epidemiological changes in the countries under study were WHO "Healthcare Systems in Transition" (HIT) and WHO "Highlights on health" publications. Similar to the country reports, the comparative study covered issues of demographic and health status changes, institutional changes of the healthcare system and utilisation and its changes in the face of ageing.

## Main results

### *Health status in the selected CEE countries*

Results indicate that analyzed countries: Bulgaria, Estonia, Hungary, Poland and Slovakia reflect varying levels of health status in the region. Even though developmental tendencies at the end of 1990's follow the same course, as one can witness improvement in the majority of health status indicators, significant discrepancies between the countries remain a fact. In extreme cases, those discrepancies are as big as or even bigger than between the old EU member states and the average CEE rates.

With regard to Life Expectancy (LE), it can be stated that Central European countries, represented in this study by Poland and Slovakia, are clearly getting closer to Western Europe level (Table 2). Right now LE rate is lower by only 4 years. Progress is predominantly brought about by a decrease in mortality indicators: infant mortality rate and death rate related to circulatory diseases and external causes. Yet, the improvement is quite extensive in nature. The gap between Healthy Life Expectancy (HALE) indicator and LE rate in Poland and in Slovakia amounts to about 14 - 12 years, whereas in the EU-15 it equals 8 years.

*Table 2. LE at birth and HALE*

| **Countries** | **LE total** | **LE male** | **LE female** | **LE F - M** | **HALE total** | **HALE male** | **HALE female** | **HALE F - M** | **LE - HALE** |
|---|---|---|---|---|---|---|---|---|---|
| Bulgaria | 72,2 | 68,5 | 75,6 | 7,1 | 63,4 | 61,0 | 65,8 | 4,8 | 8,8 |
| Estonia | 71,2 | 65,3 | 77,1 | 11,8 | 60,8 | 56,2 | 65,4 | 9,2 | 10,4 |
| Hungary | 72,6 | 68,4 | 76,8 | 8,4 | 62,4 | 59,6 | 65,2 | 5,6 | 10,6 |
| Poland | 74,6 | 70,4 | 78,9 | 8,5 | 59,9 | 55,3 | 64,5 | 9,2 | 14,7 |
| Slovakia | 74,0 | 69,9 | 78,4 | 8,5 | 61,8 | 59,3 | 64,3 | 5,0 | 12,2 |
| CEE (average) | 73,1 | 69,3 | 77,8 | 8,5 | 63,1 | n/a | n/a | n/a | 10 |
| EU-15 (average) | 78,3 | 75,1 | 81,4 | 6,3 | 70,1 | n/a | n/a | n/a | 8,2 |

*Source*: WHO 2002, WHO HFA 2005 and AHEAD, WP II country reports.

In the group of countries included in the research there are some with poorer health indicators. A special case in point here is Hungary, where the living standards are relatively advanced (measured e.g. by GDP per capita level), expenditures on healthcare are also higher than in other countries in the region (total health expenditure amounts to 7,8% of GDP compared to 5,7% in Slovakia and 5,1% in Estonia[1]), yet Hungarian health indicators lag behind those recorded by their northern neighbours from the CEE region. The analysis of underlying reasons

[1] WHO HFA data 2005.

remains unequivocal. Factors related to lifestyle and health hazard behaviour are put in the spotlight: drinking alcohol, smoking, unhealthy diet and social discrepancies related to much poorer indicators among the Roma community. The latter are not entirely convincing, though, as Hungarian neighbours present similar health hazard behaviour and significant share of Roma population, e.g. in Slovakia. Poor health indicators in Hungary might hypothetically be interpreted as a result of earlier demographic changes (ageing and entering the second phase of demographic transition as early as towards the end of 1950's).

Surprisingly poor health indicators can be observed in Estonia, a country which has had successful transition experience in terms of the implementation of market economy, favourable institutional changes and improved standard of living. Mortality and morbidity profile in Estonia is an extreme case among the Baltics. It is more similar to the group of Commonwealth of Independent States (CIS) countries, Russia in particular, than to Central Europe countries. In Estonia, transition is still accompanied by health hazard lifestyle: tobacco and alcohol abuse, poor diet, growing drug abuse, hazardous sexual behaviour and speed driving. Health promotion is a challenge Estonia has to face, not only as a part of healthcare system but also as a major value of human being.

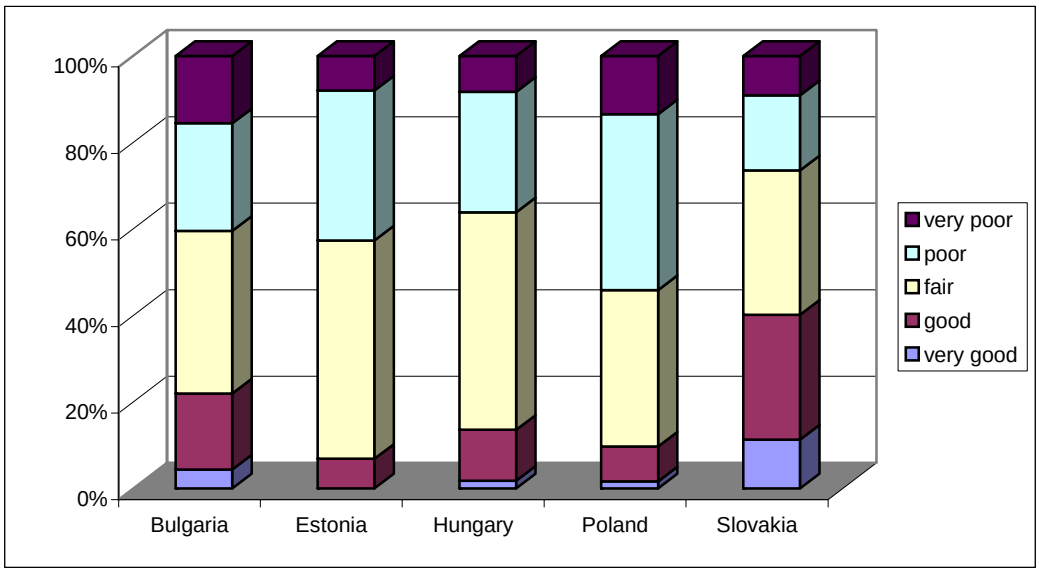
Bulgaria represents southern region of Central and Eastern Europe countries and, as such, exhibits health indicators typical of that group of countries; in some cases, such as mortality due to cancers, Bulgarian indicators are better. Still, many health indicators (e.g. cardio-vascular diseases mortality, infant mortality) compared to Central European countries are worse. Statistically, pertinently high infant mortality rate and a leap in female mortality rate in 1990's, which remains high, are the most conspicuous problem issues. To explain these factors, more detailed analysis would be required.

The course of the analysis of health status self-assessment is compliant with comparative analysis carried out on the basis of objective epidemiological data. The results of subjective research have shown that Slovak people assess their health status in the most positive way. In the course of the last decade, there has been considerable improvement in self-assessed health status in Poland. Both countries are also leaders in terms of objective improvement in epidemiological indicators.

In all Central and Eastern European countries included in the analysis, there has been correlation between self-assessed health status and the factors pertaining to demography (gender, age) and socio-economics (education, professional activity status, income). Particular emphasis must be put on the strong correlation between the lowest self-assessed health status on the one hand, and age and absence of professional activity on the other. In view of the rapid ageing process in the society and the presence of disability on a considerable scale, especially in Poland, improvement in self-assessed health status will require significant improvement in epidemiological status among the elderly (Figure 1).

For several years now, there has been an improving trend in epidemiological indicators in Central and Eastern Europe countries. One must not forget that this is just the beginning of a positive trend, although the gap between CEE and Western Europe is still significant. In post communist countries, with poorer health status of the population, health status rapidly worsens with age In result, CEE countries are entering the phase of increased incidence of neoplastic, mental and chronic diseases, typical for elderly population. The burden of those diseases represents a particularly big load in terms of overall cost of diseases (WHO 2002.) As a result, current rate of demographic changes and the overlap of subsequent phases of epidemiological transition are a serious challenge in sustainable development: both from economic standpoint and from the viewpoint of increased quality of life.

*Figure 1. Structure of health status self assessment by elderly (65+, 61+ in Slovakia)*




*Source*: Own calculations based on AHEAD country reports.

### *Medical services utilisation*

The analysis of medical service utilisation demonstrates that we are witnessing two levels among the countries included in the analysis: much higher utilisation in Hungary and Slovakia and a lower one in Poland, Estonia and Bulgaria. As for tendencies, in recent years utilisation has gone down in Slovakia and Estonia, which is probably related to the reforms carried out in those countries. In the case of Estonia, low utilisation level, including primary healthcare (PHC) services, goes hand in hand with low health status of the population.

As can be inferred from the analysis of medical service utilisation pattern, the strongest determinant in the use of primary, specialist or hospital care is the self-assessed health status. Contrary to the expectations expressed in the hypothesis, while controlling for other factors, old age is a significant determinant of medical service utilisation only for primary care. Despite its correlation with health status, old age is not an important factor for hospital visits and specialist care. This indicates that ageing process will not lead to steep increase of medical costs, since utilisation of more expensive services is not significantly driven by age itself, but it is more affected by health status. If ageing is accompanied by further improvement of health status, increase in healthcare costs can be restrained.

According to the analysis of the utilisation of healthcare services from the angle of its particular components, such as: PHC, specialist care and inpatient care, there was a significant rising trend in the utilisation of most expensive services – i.e. hospital care – during 1990's, and this tendency continues in the countries with lower health expenditures level (Poland, Bulgaria).

## Summary and Conclusion

As discussed, the countries under research have experienced extremely dynamic epidemiological development. In an accelerated mode, they have entered the phase of epidemiological transition which is characterised by improved average life expectancy resulting from lower infant mortality rate and mortality caused by civilisation diseases, predominantly by cardiovascular diseases, which represent the major cause of death. There is a marked falling

trend in that area, but so far none of the CEE countries under analysis has achieved the average rate of the EU15. As far as neoplastic diseases are concerned, falling mortality trend has not been conspicuous yet. Moreover, there are huge gaps between the countries, with record high results in Hungary and record low in Bulgaria, lower than the average for the old EU countries. There has also been improvement in the mortality related to external causes. A marked falling trend can be observed in that respect, although in two countries, Estonia and Hungary, the mortality rate from external causes is much higher, and in the 1990s those countries experienced an upsurge in the number of deaths related to external causes.

The outset of improvement in the trend in mortality related to civilisation diseases, notwithstanding the continuously high incidence of those diseases, has coincided in time with trend towards increased morbidity related to population ageing: a growing incidence of chronic diseases, poly-morbidity and disability. Poland has a particularly high prevalence of old age diseases, which are mentioned above, and disability.

Fluctuations in objective health status indicators between countries are confirmed by self-assessed health status. According to research in that field, carried out in the sample countries under analysis, the best distribution of health status self-assessment opinions (the biggest number of very good indications and the smallest number of negative ones) can be observed in Slovakia, whereas Bulgaria falls at the other end of the spectrum. Assessment findings in the other countries are less radical and more moderate, especially in Estonia (half is 'fair'), followed by Hungary and Poland, with the shift towards good marks (fair and good together represent about 70%).

The analysis of factors correlated with health status, performed by means of logit methodology on the basis of representative research from country statistical offices, corroborates the correlation between self-assessed health status on the one hand and age, education, income and professional activity on the other. With age, self-assessed health status deteriorates to a considerable extent in all the countries included in the research. In terms of education, economic status and professional activity, each of the countries has exhibited correlation with positive health status self-assessment. The course of this correlation is obvious: the higher the income and education, and when the interviewee is professionally active, the greater the likelihood of positive assessment of their health status.

Accelerated changes in epidemiological profile of CEE countries are accompanied by radical institutional changes in healthcare sector and should be discussed in the context of changing healthcare sector environment. Public funding principles have changed (from general taxation towards health insurance), and the scope of medical benefits provided from public funds is gradually reduced. Due to labour market difficulties, common in CEE countries (overall employment rate in 1990's went down by at least 10 percentage points), health insurance premium is not an effective source of funding for the sector, e.g. being sensitive to increasing unemployment rates. Furthermore, premium increase would affect the increase of non-wage labour costs. Consequently, from the standpoint of financing sources, heath care funding tends to be mixed: a combination of budgetary and insurance funding. Moreover, in all the countries the share of individual, out-of-pocket financing by the patients has been on the rise. The introduction of official co-payments for medical services in the public sector is a part of a recent wave of reform (in 2002 in Estonia and in 2004 in Slovakia).

By and large, service providers (medical service institutions) have been privatized, almost completely in terms of PHC and on a large scale with regard to outpatient specialist care, and the functioning of those institutions is largely subject to geographically de-centralized administration. There are big problems with healthcare coordination, and attempts are made to streamline coordination. A national network of units is specified on statutory terms, with precise definition of criteria required in order to obtain public financing, and in more and more cases

payer function is consolidated and re-centralized. At the same time, defining the role of regional and local self-government remains a major challenge as far as provision of medical services for the population is concerned. In all the countries the role of regional self-government as an autonomous unit of administration has increased. Having said that, however, it must be noted that autonomous regional self-government does not contribute to consolidation and savings-oriented efforts in the healthcare sector. In Poland, which has as many as three levels of self-government, and the healthcare sector itself has been divided into various levels of self-government from the standpoint of subordination (municipality – PHC, *poviat – poviat* hospitals and basic specialist care, *voivodeship* – regional hospitals and comprehensive specialist care, and finally government level – highly specialised national centres), problems with coordinating numerous rational activities are especially cumbersome.

From an organisational standpoint, it must be said that the healthcare sector has rather disintegrated. PHC, specialist care, inpatient care, rehabilitation, and nursing and therapeutic services operate as separate modules, in many cases with diverse financing sources and methods. They are also subordinate to various constitutive bodies (e.g. particular levels of local and regional self-government, as has been mentioned above with respect to Poland).

Healthcare funding in the countries included in the research is low. At the same time, the gap in the level of resources per inhabitant between the countries is quite significant. If we relate the size of per capita spending in USD according to purchasing power parity (PPP) to the country with the lowest funding (Bulgaria), Poland will have 3 times more, Hungary 5 times more, and the average for the old EU countries will be 10 times higher than in Bulgaria. Health is not a policy priority, in spite of political declarations and the social drive towards reform. According to international studies, societies of the new EU member states most frequently mention the need for reform, particularly in Hungary and Poland (Stockholm Network, 2005.) Although it is not quite clear which way such a reform should go, those opinions are a natural consequence of a negative evaluation of national healthcare systems.

In conclusion, the healthcare system in CEE countries was subject to significant changes during the transition. Changes were made in accordance with mainstream developments: increased autonomy of institutions and professions, development of local and regional self-government, and greater impact of the market mechanism. As a consequence, these countries are currently facing serious problems with coordination, system disintegration and lack of control over the market environment (especially in the area of drugs.) At the same time, in view of the increased health needs caused by dynamic ageing of the society and epidemiological patterns observed in CEE, those countries must improve funding as well as implement rationing reforms (introduction of official rationing and cost-effectiveness techniques), sector integration (managed care approach) and the development of information and analytical systems for better governance and supervision over the application of new technology.

## References

Eberstadt, N. (2005), "Health and Demography: The Achilles' Heel of Post – Socialist development in Europe", presentation on the conference on Advancing Economic Growth: Investing in Health, Chatham House, 22-23 June, London

European Communities and WHO (2001), *Highlights on Health in Bulgaria*, WHO Regional Office for Europe, Copenhagen.

European Communities and WHO (2001), *Highlights on Health in Estonia*, WHO Regional Office for Europe, Copenhagen.

European Communities and WHO (2001), *Highlights on Health in Poland*, WHO Regional Office for Europe, Copenhagen.

European Communities and WHO (2001), *Highlights on Health in Slovakia*, WHO Regional Office for Europe, Copenhagen.

European Communities and WHO (2002), Health Status Overview for Countries of Central and Eastern Europe that are Candidates for Accession to the European Union, Copenhagen (http://www.euro.who.int/eprise/main/).

Europaeische Kommission (2003), Die Gesundheitssituation in der Europaeische Union. Gesundheitsunteschiede verringen. EU, Luxemburg.

Eurostat (2005), GDP per capita in 2004, w: *Eurostat News Release* Nr 75/2005 3 June 2005 (http://epp.eurostat.cec.eu.int/pls/portal/docs/PAGE/PGP_PRD_CAT_PREREL/PGE_CAT_PRELEL_YEAR_2005/PGE_CAT_PRELEL_YEAR_2005_MONTH_06/2-03062005-EN-BP.PDF).

Figueras, J., M. McKee and S. Lessof (2002), *Ten years of health sector reform in CEE and NIS: An Overview*, background paper prepared for US Aid Conference, Washington, D.C.

Disney, H., D. Hill, P. Hrobon, A. Kruszewski, H. Madarova, R. Nye and M. Stefunko (2005), *Poles Apart? European Attitudes to Healthcare Reform*, Stockholm Network, Populus, London.

Drygas, W. (2005), "Usprawnienie wczesnej diagnostyki i czynnej opieki nad osobami z ryzykiem rozwoju niedokrwiennej choroby serca", in P. Goryński, B. Wojtyniak and K. Kuszewski (eds), *Monitoring oczekiwanych efektów realizacji Narodowego Programu Zdrowia 1996 – 2005*, Suplement, Ministerstwo Zdrowia i Państwowy Zaklad Higieny, Warszawa.

Gaal, P. (2004), *Healthcare system in transition: Hungary*, WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies, Copenhagen.

Goldstein, E., A.S. Preker, O. Adeyi and G. Chellaraj (1996), *Trends in Health Status, Services and Finance. The Transition in Central and Eastern Europe*, The World Bank, Washington, D.C.

Golinowska, S. (1990), Rola centrum w kształtowaniu struktury spożycia, PWE, Warszawa.

Golinowska, S. and K. Piętka (2002), "Invalidity Pensions: Trends and Policies in Poland", in Ch. Prinz (ed.), *European Disability Pension Policies. 11 Country Trends 1970 – 2002*, Ashgate, Aldershot –Brookfield – Singapore – Sydney.

Golinowska, S. and A. Sowa (2005), Health and Morbidity in the Accession Countries. Poland, WP II AHEAD.

GUS (2004), *Ochrona zdrowia w gospodarstwach domowych w 2003 r.*, Warszawa.

GVG (2003), Study on the Social Protection Systems in the 13 CC, Country Reports (www.europa.eu.int).

Hamers, F.F. and A.M. Downs (2003), HIV in Central and Eastern Europe, w: *Lancet* 2003, No. 361, pp. 035-1044.

Hlavacka, S., R. Wagner and A. Riesberg (2004), *Healthcare system in transition: Slovakia.* WHO Regional office for Europe on behalf of the European Observatory on Health Systems and Policies, Copenhagen.

ICDC Unicef (1994), *Crisis in Mortality, Health and Nutrition*, Economies in Transition Studies, Regional Monitoring Report No. 3, Florence.

Jesse, M., J. Habicht, A. Aaviksoo, A. Koppel and S. Thompson (2004), *Healthcare systems in transition: Estonia*, WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies, Copenhagen.

Koulaksazov, S., S. Todorova, E. Tragakes and S. Hristova (2003), *Healthcare systems in transition: Bulgaria*, WHO Regional Office for Europe on behalf of the European Observatory on Health Systems and Policies, Copenhagen.

Kvetan, V. and V. Palenik (2005), Health and Morbidity in the Accession Countries. Slovakia, WP II AHEAD.

Law, C.K. and P.S.F. Yip (2003), "Healthy expectancy in Hong Kong special administrative region of China", *Bulletin WHO*, No. 81, pp. 43-47.

MacLehose, L. (2002), "Health trends in the EU and candidate countries. Common challenges?", *Eurohealth*, 8 (4), Special Issues, pp. 5-8.

McKee, M., R. Adany and R. Maclehose (2004), "Health status and trends in candidate countries", in M. MacKee, L. MacLehose and E. Nolte (eds), *Health policy and European Union enlargement*, European Observatory on health Systems and Policies Series, Open University Press, Berkshire.

McKee, M. and D. Leon (1997), "Understanding the Russian Mortality Crisis", *Eurohealth* 3 (2), pp. 21-22.

Mathers, C.D., C.J.L. Murray, J.A. Salomon and A.D. Lopez (2001), *Estimates of healthy life expectancy for 191 countries in the year 2000: Methods and results*, GPE Discussion Paper No. 38, WHO, Geneva.

Mihalyi, P. (2004), "De-integration and disintegration of healthcare in post-communist economies", in *CEU Economics Working Paper* 5/2004, Central European University, Budapest.

Mitra, P. (2005), "Towards Sustainable Social Sector Expenditures in the New Member Countries of the European Union", keynote presentation at an international conference on Advancing Economic Growth: Investing in Health, Chatham House, 22-23 June, London.

Mossey, J.M. and E. Shapiro (1982), "Self-Rated Health: A Predictor of Mortality Among the Elderly", in *AJPH*, Sierpień 1982, Vol. 72, No. 8.

M.Z. (2004), *Zielona Księga finansowania ochrony zdrowia w Polsce*, raport przygotowany pod kierunkiem S. Golinowskiej, Ministerstwo Zdrowia, Warszawa.

Nolte, E., M. McKee and A. Gilmore (2004), "Morbidity and mortality in transition countries in the European context", background paper for the session on Morbidity, mortality and reproductive health: facing challenges in transition countries, European Population Forum, *Population Challenges and Policy Response*, UN ECE and UNFPA, Geneva.

OECD (2004), *OECD Health Data* (www.oecd.org).

Okolski, M. (1988), *Reprodukcja ludności a modernizacja społeczeństwa*, Polski syndrome, KiW, Warszawa.

Okólski, M. (2004), *Demografia zmiany społecznej*, Wydawnictwo Naukowe Scholar, Warszawa.

Oswaldo Cruz Foundation (2000), *Report of the workshop "health systems performance - the world health report 2000*, Ministry of Health, Rio de Janeiro, 14-15 December.

Pikhart, H., M. Bobak, J. Siegrist, A. Pająk, S. Rywik, J. Kyshegyi, A. Gostautas, Z. Skodova and M. Marmot (2001), "Psychosocial work characteristics and self rated health in four post-communist countries", *J. Epidemiol. Community Health*, No. 55, pp. 624-630.

Pudule, I., D. Grinberga, K. Kadziauskiene, A. Abaravicius, S. Vaask, A. Robertson and M. McKee (1999), "Patterns of smoking in the Baltic Republics", *J Epidemiological Comm Health*, No. 53, pp. 277-283.

Rangelova, R. (2005), Health and Morbidity in the Accession Countries Bulgaria, WP II AHEAD.

Remák, E., R.I. Gál and R. Németh (2005), Health and Morbidity in the Accession Countries, WP II, AHEAD.Roovali, L. (2005), Health and Mortality in Estonia, WP II, AHEAD.

Sadana, R., C.D. Mathers, A.D. Lopez, C.J.L. Murray and K. Moesgaard-Iburg (2002), "Comparative analysis of more than 50 household surveys of health status", in C.J.L. Murray, J.A. Salomon, C.D. Mathers and A.D. Lopez (eds), *Summary measures of population health: Concepts, ethics, measurement and applications*, Geneva, World Health Organisation.

Salomon, J.A., C.D. Mathers, C.J.L. Murray and B. Ferguson (2001), *Methods for life expectancy and healthy life expectancy uncertainty analysis*, GPE Discussion Paper No. 10, WHO (http://www.who.int/evidence).

Shkolnikov, V.M., F. Mesle and J. Vallin (1996), "Health crisis in Russia I. Recent trends in life expectancy and causes of death from 1970 to 1993", *Population*, No. 8, pp. 123-154.

Steines, V.S. (1999), *A Health Sector Strategy for the Europe and Central Asia Region*, The World Bank, Washington, D.C.

Szaflarski, M. and L.A. Cubbins (2004), "Self-reported health in Poland and the United States: A comparative analysis of demographic, family and socioeconomic influences", *An Interdisciplinary Journal for the Social Study of Health, Illness and Medicine*, SAGE Publications, London.

UNDP (2005), "Development Performance and Policies – Bulgaria 2004" (www.undp.bg/en/pb_dev_perfor_policies.php).

UNDP (2004), *Reversing The Epidemic. Facts and Policy Options*, HIV/AIDS in Eastern Europe and the Commonwealth of Independent States, Bratislava.

WHO (2005), "Health for All Database" (www.who.org).

WHO (2002), *The European Health Report 2002*, WHO Regional Publications, European Series, No. 97, Copenhagen.

WHO Europe (2001), DOTS Expansion Plan to Stop TB in the WHO European Region 2002 – 2006, Copenhagen.

Włodarczyk, C.W. (1998), *Reforma opieki zdrowotnej w Polsce. Studium polityki zdrowotnej*, Uniwersyteckie Wydawnictwo Medyczne 'Vesalius', Kraków.

Wojtyniak, B. and P. Goryński (2001), *Highlights on health*, Państwowy Zakład Higieny, Warszawa.

Zatoński, W. and K. Przewoźniak (2005), "Zmniejszenie rozpowszechnienia palenia tytoniu", in P. Goryński, B. Wojtyniak and K. Kuszewski (eds), *Monitoring oczekiwanych efektów realizacji Narodowego Programu Zdrowia 1996 – 2005*, Suplement, Ministerstwo Zdrowia i Państwowy Zakład Higieny, Warszawa.

## AHEAD Studies Published in the ENEPRI Research Reports Series

**(available for free downloading from www.enepri.org or http://shop.ceps.be)**

No. 15 *Health and Morbidity by Age and Socio-Economic Characteristics*, Richard Layte, Anne Nolan, Brian Nolan and Tom Van Ourti, November 2005

No. 16 *The Influence of Supply and Demand Factors on Aggregate Healthcare Expenditure with a Specific Focus on Age Composition*, Erika Schulz, November 2005

No. 17 T*he Impact of Death-Related Costs on Healthcare Expenditure: A Survey*, Michele Raitano, February 2006

No. 18 *Demographic Factors and Health Expenditure Profiles by Age: The Case of Italy*, S. Gabriele, C. Cislaghi, F.Costantini, F. Innocenti, V. Lepore, F. Tediosi, M. Valerio and C. Zocchetti, May 2006

No. 26 *Health and Morbidity in the Accession Countries: Country Report – Bulgaria*, Rossitsa Rangelova, December 2006

No. 27 *Health and Morbidity in the Accession Countries: Country Report – Estonia*, Liis Rooväli, December 2006

No. 28 *Health and Morbidity in the Accession Countries: Country Report – Hungary,* Edit Remák, Róbert I. Gál and Renáta Németh, December 2006

No. 29 *Health and Morbidity in the Accession Countries: Country Report – Poland,* Stanisława Golinowska and Agnieszka Sowa, December 2006

No. 30 *Health and Morbidity in the Accession Countries: Country Report – Slovakia,* Vladimír Kvetan, Viliam Páleník, December 2006

No. 31 *Health Status and Healthcare Systems in Central and East European Countries: Bulgaria, Estonia, Poland, Slovakia and Hungary,* Stanisława Golinowska, Agnieszka Sowa and Roman Topór-Mądry, December 2006

No. 32 *Demographic Changes and Aggregate Health-Care Expenditure in Europe*, Terkel Christiansen, Mickael Bech, Jørgen Lauridsen and Pascal Nielsen, December 2006

No. 33 *Healthy Life Expectancy in the European Union Member States,* Ehsan Khoman and Martin Weale, December 2006

No.34 *Incidence of Poor Health and Long-Term Care: Health Transitions in Europe: Results from the European Community Household Panel Survey and Institutional Data*, Andrew Bebbington and Judith Shapiro, December 2006

No. 35 *Health Status Transitions,* Maria M. Hofmarcher, Monika Riedel, Alexander Schnable and Gerald Sirlinger, June 2007

| **AHEAD Work Packages** | |
|---|---|
| WPI | Health and Morbidity by Age and Socio-economic Circumstances |
| WPII | Health and Morbidity in the New Member States |
| WPIII | Incidence of Poor Health and Long-term Care |
| WPIV | Health Status Transitions |
| WPV | Healthy Life Expectancy |
| WPVI | Determinants of Aggregate Healthcare Expenditure focusing on age composition |
| WPVII | Health Costs Prior to Death |
| WPVIII | Development of Scenarios for Health Expenditure in European Union Countries |
| WPIX | Development of Scenarios for Health Expenditure in the New Member States |

# About AHEAD

In February 2004, a CEPS-led consortium of research institutes launched the implementation of a three-year project called AHEAD (Ageing, Health Status and the determinants of Health Expenditure). Most of the consortium's 18 partner institutes are members of the European Network of Economic Policy Research Institutes (ENEPRI – see http://www.enepri.org for details). As specified in the call for proposals, the main task of the project is to carry out an "Investigation into different key factors driving healthcare expenditures and in particular their interaction with particular reference to ageing" in the (enlarged) European Union.

The strategic objectives of AHEAD are to:

- assess pressures on health spending in the existing EU and in selected candidate countries, looking both at those arising directly from ageing and at those affected by changing incomes, social change and methods of expenditure control;
- develop models for projecting future health spending and
- estimate confidence limits for these projections.

Expenditure on medical treatment has tended to rise as a proportion of national income throughout the European Union. A particular concern is that an ageing population and therefore the presence of more old people will create further pressures for expenditure on healthcare. This issue is of concern both in its own terms and because of its fiscal implications. Rising health expenditures put pressure on the targets of the Stability and Growth Pact. They also raise the question whether budgetary targets should be tightened ahead of projected growth in public expenditures, so as to 'save up' for future spending and keep expected future tax rates reasonably constant.

This project has aimed to refine existing estimates of the links between reported states of health and use of medical services. As well as looking at the effects of ageing on healthcare, the research has taken account of the link between health expenditure and fertility rates and the demands on health services made by non-native populations. Particular attention is paid to the costs of care near death. One study examined factors other than demand (such as methods of financial control) that may influence health spending. An important aspect of this research is that the work is carried out so as to be able to provide not only the familiar projections and scenarios but also standard deviations and confidence limits for predictions of key variables, such as healthy life expectancy and demand-driven expenditure levels. These will allow policy-makers to judge not only possible outcomes but also the risks surrounding them and to assess their implications.

### Participating Research Institutes

Centre for European Policy Studies, CEPS, Belgium
National Institute for Economic and Social Research, NIESR, UK
Netherlands Bureau for Economic Policy Research, CPB, The Netherlands
Deutsches Institut für Wirtschahftsforschung, DIW, Germany
Economic and Social Research Institute, ESRI, Ireland
Research Institute of the Finnish Economy, ETLA, Finland
Federal Planning Bureau, FPB, Belgium
Istituto di Studi e Analisi Economica, ISAE, Italy
Institute for Advanced Studies, HIS, Austria
Institute for Public Health, IPH, Denmark
Laboratoire d'Economie et de Gestion des Organisations de Santé, LEGOS, France
Personal Social Services Research Unit, PSSRU, UK
Fundación de Estudios de Economía Aplicada, FEDEA, Spain
Centre for Social and Economic Research, CASE, Poland
Institute of Slovak and World Economy, ISWE, Slovak Republic
Institute of Economics at the Bulgarian Academy of Sciences, IE-BAS, BG
Social Research Centre, TARKI, Hungary
Department of Public Health, University of Tartu, Estonia